

Remarks/Arguments

This communication is intended to advance the prosecution of the case.

Applicants have carefully reviewed the art cited by the Examiner and the Examiner's comments with respect to the prior art and believe that there may be some confusion as to the invention and precisely what the present invention is. While applicants are not amending the claims at present, pending clarification as to the invention and precisely what applicants believe that the claims in this case cover, they note that should the claims require clarification, they are prepared to consider amendments which will satisfy the Examiner and facilitate recognition of the distinctions over the art.

Firstly, applicants note that the invention is a drive for a double-screw extruder. Applicants are not relying upon the material worked but state that it is important to recognize that an extruder having at least two extrusion worms will work upon an extrudable and plastifiable material. The invention however is the drive assembly for the double-screw extruder and that drive assembly has at least one drive motor having at least one cylindrical stator and cylindrical rotor cooperating with that stator. Applicants cannot find in the art which the Examiner has relied upon a motor with a cylindrical stator or cylindrical rotor at all.

The COTTEVERTE et al patent 6,523,997 does describe a pair of extrusion worms and a shaft arrangement for them, but does not even mention a motor, let alone teach a motor with a cylindrical rotor. The GALE et al reference appears to disclose a single worm unit and the Examiner has referred to member 20 as the stator and member 22 as the rotor in GALE. However, that reference at column 5, lines 52 ff, makes clear that the stator and rotor are members of the mixer at the downstream end of the extruder barrel. They are not described as nor can they be parts of a drive motor. The reference does indicate that the extruder is a variable-speed commutator motor at column 10, line 52, which apparently is located somewhere at which it can drive the extruder and the mixer. The cylindrical rotor is not mentioned or shown (nor is the motor shown or called out with the reference numeral in the GALE patent). In short, the references are not germane to what has been claimed and do not teach or suggest the subject matter of claim 1 or of any other claim in this case.

Applicants have requested the undersigned to clarify for the Examiner the significance of the invention.

The invention is a drive for a double-screw extruder. It uses a very specific construction of a motor. In the past when a single motor was used to drive two screws or worms, separate transmissions connected the screws to the output shaft of the

motor. The transmissions were costly, occupied large volumes, required costly repair and maintenance, etc.

In another approach each worm or screw was driven by a separate motor and each motor had its output shaft connected by its own transmission to the worm. This system also was complicated, voluminous and expensive and even created a problem with respect to synchronization.

These were problems attacked by the invention. To solve these problems, the drive assembly of claim 1 has been developed and uses a drive motor with a cylindrical stator and a cylindrical rotor (instead of the shaft-type stators of the prior art).

The key point is that each worm is connected to the cylindrical rotor independently of the other worm. If, for example, in the embodiment of FIG. 1, a single rotor is provided, the pinions of the worms independently mesh with the internal gear of the cylindrical rotor or mesh therewith through the intermediary of another gear. The advantage of this should jump to mind. The arrangement is compact and simple, and is in no way suggested by COTTEVERTE et al as combined with GALE et al.

COTTEVERTE et al does not contain the least description of a drive motor and the motor of GALE et al is not the mixer 18, so that GALE cannot suggest a cylindrical rotor of a motor either.

A combination of the references, therefore, will not yield the structure recited in claim 1 or any other claim in the case.

The claims as they stand are thus believed to be allowable and an early Notice to that effect is earnestly solicited.

Respectfully submitted,  
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